

## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

### **Listing of Claims:**

1. (Canceled)
2. (Previously presented) A method of reducing mercury level in a mercury contaminated material comprising:
  - (a) placing a carbon-free material in a microwave reactor;
  - (b) placing the mercury contaminated material in the microwave reactor;
  - (c) providing a stream of gas introduced from substantially below said mercury contaminated material wherein said gas and mercury contaminated material form a fluidized bed in the microwave reactor, the stream causing agitation of the mercury contaminated material and the carbon-free material so as to form a mixture; and
  - (d) exposing the mercury contaminated material to microwave radiation so as to raise the temperature to at least 357°C, producing a vapour phase which contains mercury and a treated material.
3. (Canceled)
4. (Previously presented) A method of reducing mercury and carbon levels in a mercury contaminated material comprising:
  - (a) placing a carbon-free material in a microwave reactor;
  - (b) placing the mercury contaminated material in the microwave reactor;
  - (c) providing a stream of gas introduced from substantially below said mercury contaminated material wherein said gas and mercury contaminated material form a fluidized bed in the microwave reactor, the stream causing

agitation of the mercury contaminated material and the carbon-free material so as to form a mixture; and

- (d) exposing the mercury contaminated material to microwave radiation so as to raise the temperature to at least 600°C, producing a vapour phase which contains mercury and a treated material.

5. (Canceled)

6. (Previously presented) The method according to claim 2 or 4 further comprising the steps of:

- (e) removing the vapour phase from the reactor;
- (f) terminating exposure of microwave radiation;
- (g) removing the treated material from the reactor;
- (h) introducing fresh carbon-free material in the reactor; and
- (i) introducing fresh mercury contaminated material in the reactor.

7. (Canceled)

8. (Original) The method according to claim 6, wherein steps (e) through (i) are continuous steps.

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)
16. (Canceled)
17. (Canceled)
18. (Canceled)
19. (Canceled)
20. (Canceled)
21. (Canceled)
22. (Original) The method according to claim 2 or 4, wherein a ratio of mercury contaminated material to carbon-free material of between 25/75 and 75/25 is used.
23. (Original) The method according to claim 22, wherein said ratio is about 50/50.
24. (Canceled)
25. (Canceled)
26. (Canceled)
27. (Canceled)
28. (Canceled)
29. (Original) The method according to claim 2 or 4, wherein said carbon-free material is a microwave receptive material having a size distribution and density which are greater than that of the mercury contaminated material, and is selected from manganese dioxide, silica, metallic oxides, siliceous oxides and mixtures thereof.

30. (Original) The method according to claim 29, wherein said carbon-free material is selected from manganese dioxide and silica.
31. (Canceled)
32. (Canceled)
33. (Canceled)
34. (Canceled)
35. (Previously presented) The method according to claim 4 further comprising the steps of:
- (a) removing the vapour phase from the reactor;
  - (b) terminating exposure of microwave radiation;
  - (c) removing the treated material from the reactor;
  - (d) introducing fresh carbon-free material in the reactor; and
  - (d) introducing fresh mercury contaminated material in the reactor.
36. (Previously presented) The method according to claim 6 further comprising the step of introducing the vapour phase in a filtration device.
37. (Currently amended) A method of reducing mercury level in a mercury contaminated material, comprising:
- (a) placing the mercury contaminated material in ~~the~~ a microwave reactor;
  - (b) providing a stream of gas introduced from substantially below said mercury contaminated material wherein said gas and mercury contaminated material form a fluidized bed in the microwave reactor, the stream causing agitation of the mercury contaminated material ~~and the carbon-free material so as to form a mixture~~; and,

(c) exposing the mercury contaminated material to microwave radiation so as to raise the temperature to at least 357°C, producing a vapour phase which contains mercury and a treated material,  
wherein said method is maintained continuously.

38. (Canceled)